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Notice of Allowability

Application No.

10/729,906

Examiner

Karen E. Toth

Applicant(s)

SUZUKI ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the response to restriction filed 25 October 2006.
2. ☒ The allowed claim(s) is/are 6,7 and 10.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


CHARLES A. MARMOR II
 SUPERVISORY PATENT EXAMINER
 TECHNOLOGY CENTER 3700

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 12/5/05, 11/14/05, 12/9/03.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 6-7 and 10 in the reply filed on 25 October 2006 is acknowledged. The traversal is on the ground(s) that examination of all species within the application would not pose a significant burden on the examiner. This is not found persuasive because the species have a separate status in the art, since measurement of multiple pulse waves requires vastly different sensors and processing algorithms. Additionally, the elected species is used to generate composite pulse wave waveforms, which the non-elected species cannot be used to perform.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1-5 and 8-9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 25 October 2006.

Examiner's Amendment

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Linda Saltiel on 23 December 2006.

The application has been amended as follows: Claims 1-5 and 8-9 have been cancelled, as they are drawn to non-elected species.

Allowable Subject Matter

4. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to anticipate or make obvious the structure of claims 6-7 and 10, including, *inter-alia*, a pressure pulse wave sensor with a plurality of layers of piezoelectric sensors where the layers are arranged perpendicularly to each other and stacked vertically, and a device for generating a composite pulse wave using the pulse waves having the greatest amplitude from each piezoelectric layer.

Bridger (US Patent 6491647) discloses a pulse wave sensor (element 1) comprising a plurality of flexible and elongate sensors (elements 32) that may be formed of piezoelectric resin (column 16, lines 50-54) and are used to detect a subject's pulse wave (column 13, lines 19-28). The sensors are fixed to a flexible sheet (element 31; column 16, lines 41-45)) in a width-wise direction (figure 1). Bridger does not disclose using multiple layers of these sensors and arranging them in perpendicular directions in order to detect pulse waves traveling perpendicularly to each other, or forming a composite pulse wave signal from a plurality of signals having maximal amplitudes.

Shinoda (US Patent 4784152) discloses a pulse wave sensor (figure 5) comprising a plurality of flexible and elongate piezoelectric sensors (elements 82, 84,

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and 86) that detect a subject's pressure pulse wave (column 8, line 55 to column 9, line 13). The sensors are fixed to a flexible sheet (element 80) in a width-wise direction (figure 5). Shinoda does not disclose does not disclose using multiple layers of these sensors and arranging them in perpendicular directions in order to detect pulse waves traveling perpendicularly to each other, or forming a composite pulse wave signal from a plurality of signals having maximal amplitudes.

Reinbold (US Patent 6033370) discloses a sensor with a plurality of layers of sensing elements (figure 2a). However, Reinbold also discloses that the sensing layers are formed of foam, and that piezoelectric material would not be an appropriate material for use in this sensor, and does not disclose forming a composite signal from a plurality of signals having maximal amplitudes.

Harada (US patent 5617868) discloses a pulse wave sensing device comprising a sensing element with several rows of piezoelectric sensing elements (element 114, figure 4), but does not discloses arranging them in a vertical stack or perpendicular to each other, or forming a composite pulse wave signal from a plurality of signals having maximal amplitudes.

Kawamura (US Patent 4561447) discloses a pulse wave sensor comprising a plurality of flexible and elongate piezoelectric sensors that are used to detect a subject's pulse wave, where the sensors are arranged in a width-wise direction (figures 6-8), and using a plurality of pulse wave signals having maximal amplitudes to generate a composite pulse wave measurement (column 4, lines 30-45). Kawamura does not

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disclose using multiple layers of piezoelectric sensing elements, arranged perpendicularly, to sense pulse waves.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 4960118 to Pennock, which discloses a system with a similar structure.

US Patent 5792058 to Lee, which discloses a system with a similar structure.

US Patent Application Publication 2003/0115966 to Ueno, which discloses a system with a similar structure.

6. This application is in condition for allowance except for the presence of claims 1-5 and 8-9, directed to an invention non-elected with traverse in the reply filed on 25 October 2006. Applicant is given ONE MONTH or THIRTY DAYS from the date of this letter, whichever is longer, to cancel the noted claims or take other appropriate action (37 CFR 1.144). Failure to take action during this period will be treated as authorization to cancel the noted claims by Examiner's Amendment and pass the case to issue. Extensions of time under 37 CFR 1.136(a) will not be permitted since this application will be passed to issue.

The prosecution of this case is closed except for consideration of the above matter.

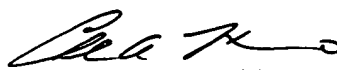
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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen E. Toth whose telephone number is 571-272-6824. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor, II can be reached on 571-272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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